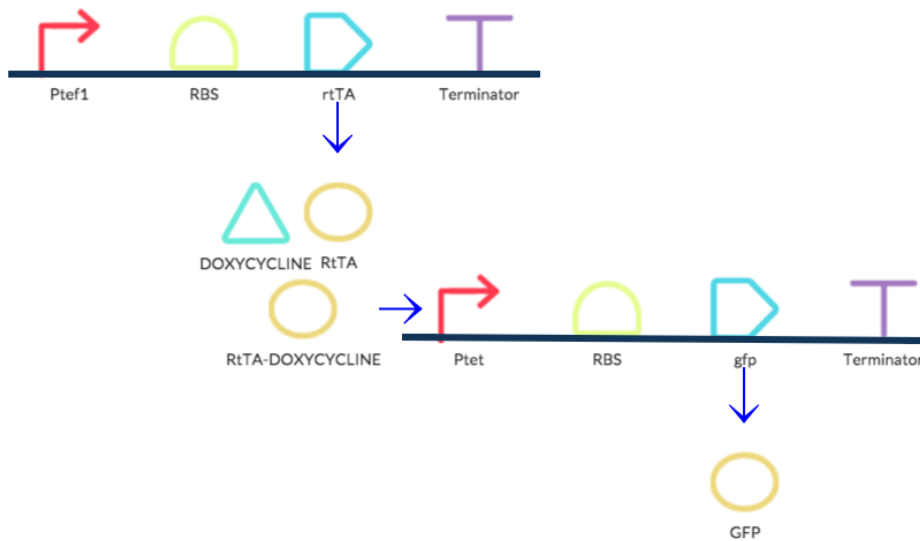


## Responsor-DOXYCYCLINE



### Formulae for two certain parts

$$\frac{d[\text{RtTA}]}{dt} = \chi_{\text{Ptef1}} \alpha_{\text{RtTA}} [\text{rtTA}] - d[\text{RtTA}]$$

RtTA–Doxycycline and *Doxycycline*

$$\frac{d[\text{RtTA–Doxycycline}]}{dt} = k[\text{Doxycycline}] - d[\text{RtTA–Doxycycline}]$$

rtTA–Doxycycline and rtTA

$$\frac{d[\text{RtTA–Doxycycline}]}{dt} = k[\text{RtTA}] - d[\text{RtTA–Doxycycline}]$$

GFP

$$\frac{d[\text{GFP}]}{dt} = \chi_{\text{Ptet}} \alpha_{\alpha} [\text{gfp}^F] - d[\text{GFP}]$$

$$[\text{gfp}^F] = [\text{gfp}] \frac{[\text{rtTA–Doxycycline}]^n}{K^n + [\text{rtTA–Doxycycline}]^n}$$

### Parameter Table

Symbols	Parameters	Values and Units
Alpha_RtTA	Translation rate of RtTA	0.73 umol*min <sup>-1</sup>
Alpha_alpha	Translation rate of $\alpha$	1.12 umol*min <sup>-1</sup>
Alpha_RFP	Translation rate of RFP	0.93 umol*min <sup>-1</sup>
K	Repression coefficient	2.5
N	Hill coefficient	3
D	Degradation rate of protein	0.35 s <sup>-1</sup>
K	Production rate of RtTA-Doxycycline	0.8 umol*min <sup>-1</sup>

**Reference:** [http://2014.igem.org/Team:UCSF\\_UCB](http://2014.igem.org/Team:UCSF_UCB)